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Reproduced Claims 1-3, 6-9, 11-20 and 22-25 on Appeal

1. A cutting tool system comprising:

a clamping device including a clamping block having an aperture, the aperture including an aperture surface;

a cutting tool including a front portion at which a cutting edge is disposed, and a shaft extending rearwardly from the front portion, the shaft being fixed in the aperture by a tool-securing clamping force that is releasable to enable the shaft to be displaced relative to the clamping device to a desired position for properly orienting the cutting edge, the shaft including an outer envelope surface facing the aperture surface;

a spring-loaded element projecting from one of the envelope surface and the aperture surface and yieldably engaging a recess formed in the other of the envelope surface and the aperture surface when the cutting tool and its cutting edge are in the desired position, to provide an indication that the cutting tool is in such desired position by requiring a sudden increase in a force necessary to displace the cutting tool from the desired position; and

a clamp actuator arranged to act on the clamping block to cause the clamping block to apply the tool-securing clamping force to the shaft independently of the spring-loaded element.

3. The cutting tool system according to claim 1 wherein the shaft, when the clamping force is released, is displaceable along a longitudinal axis of the shaft, the spring-loaded element opposing such longitudinal movement of the shaft.

6. The cutting tool system according to claim 1 wherein the shaft portion and the aperture define a common longitudinal axis, the envelope surface being substantially cylindrical, the recess comprising at least one dimple.

7. The cutting tool system according to claim 6 wherein the at least one dimple comprises a line of dimples extending parallel to the axis.

8. The cutting tool system according to claim 1 wherein the shaft portion and the aperture define a common longitudinal axis, the recess comprising at least one groove lying in a plane oriented perpendicularly to the axis.

9. The cutting tool according to claim 8 wherein the at least one groove comprises a plurality of grooves spaced apart along the axis at regular intervals. The cutting tool system according to claim 1 wherein the shaft portion and the aperture define a common longitudinal axis, the envelope surface being substantially cylindrical, the recess comprising at least one dimple.

11. The cutting tool system according to claim 1 wherein the envelope surface and the aperture define a common longitudinal axis, the envelope surface and the aperture surface being of polygonal cross section, the recess comprising at least one groove lying in a plane oriented perpendicularly to the axis.

12. The cutting tool system according to claim 11 wherein the at least one groove comprises a plurality of grooves spaced apart at regular intervals along the axis.

13. The cutting tool system according to claim 1 wherein the recess has a generally V-shaped cross section, the spring-loaded element comprising a rotatable element.

14. The cutting tool system according to claim 13 wherein the rotatable element is a sphere.

15. The cutting tool system according to claim 13 wherein a spring biasing the rotatable element comprises a coil spring.

16. The cutting tool system according to claim 13 wherein a spring biasing the rotatable element comprises an elastomer.

17. The cutting tool system according to claim 13 wherein a center of the rotatable element is situated outside of the recess.

18. The cutting tool system according to claim 17 wherein the recess defines a V-shape having an angle in the range of 35-85°.

19. The cutting tool system according to claim 18 wherein the angle is in the range of 55-65°.

20. The cutting tool system according to claim 18 wherein the angle is substantially 60°.

22. A tool-clamping device comprising a block having an aperture adapted to receive and clamp a shaft of a cutting tool, a spring-loaded element mounted in the block and projecting into the aperture for yieldably contacting the shaft, and a clamping actuator arranged to act on the block independently of the spring-loaded element for reducing a cross section of the aperture to clamp the shaft.

23. The tool-clamping device according to claim 22 wherein the spring-biased element comprises a rotatable element spring-biased toward the aperture.

24. The tool-clamping device according to claim 23 wherein the rotatable element comprises a sphere.

25. A cutting tool system comprising:

a clamping device including a clamping block having an aperture, the aperture including an aperture surface;

a cutting tool including a front portion at which a cutting edge is disposed, and a shaft extending rearwardly from the front portion, the shaft being fixed in the aperture by a clamping force that is releasable to enable the shaft to be displaced relative to the clamping device to a desired position for properly orienting the cutting edge, the shaft including an outer envelope surface facing the aperture surface, and

a spring-loaded device projecting from one of the envelope surface and the aperture surface and yieldably engaging a recess formed in the other of the envelope surface and the aperture surface when the cutting tool and its cutting edge are in the desired position, to provide an indication that the cutting tool is in such desired position by requiring a

sudden increase in a force necessary to displace the cutting tool from the desired position;

wherein the shaft, when the clamping force is released, is displaceable by being rotatable about a longitudinal axis of the shaft, the spring-loaded device opposing such rotation of the shaft.

26. A cutting tool system comprising:

a clamping device including a clamping block having an aperture, the aperture including an aperture surface;

a cutting tool including a front portion at which a cutting edge is disposed, and a shaft extending rearwardly from the front portion, the shaft being fixed in the aperture by a clamping force that is releasable to enable the shaft to be displaced relative to the clamping device to a desired position for properly orienting the cutting edge, the shaft including an outer envelope surface facing the aperture surface, and

a spring-loaded device projecting from one of the envelope surface and the aperture surface and yieldably engaging a recess formed in the other of the envelope surface and the aperture surface when the cutting tool and its cutting edge are in the desired position, to provide an indication that the cutting tool is in such desired position by requiring a sudden increase in a force necessary to displace the cutting tool from the desired position;

wherein the shaft portion and the aperture define a common longitudinal axis, the envelope surface being substantially cylindrical and the recess comprises a groove extending parallel to the longitudinal axis.

27. A cutting tool system comprising:

a clamping device including a clamping block having an aperture, the aperture including an aperture surface;

a cutting tool including a front portion at which a cutting edge is disposed, and a shaft extending rearwardly from the front portion, the shaft being fixed in the aperture by a clamping force that is releasable to enable the shaft to be displaced relative to the clamping device to a desired position for properly orienting the cutting edge, the shaft including an outer envelope surface facing the aperture surface; and

a spring-loaded device projecting from one of the envelope surface and the aperture surface and yieldably engaging a recess formed in the other of the envelope surface and the aperture surface when the cutting tool and its cutting edge are in the desired position, to provide an indication that the cutting tool is in such desired position by requiring a sudden increase in a force necessary to displace the cutting tool from the desired position;

wherein the shaft portion and the aperture define a common longitudinal axis, the recess comprising at least one groove lying in a plane oriented perpendicularly to the axis, the at least one groove comprising a plurality of grooves spaced apart along the axis at regular 10 mm intervals.